1 OVERVIEW OF TRAINING PROGRAM

1.1 PURPOSE AND SCOPE

1.1.1 The purpose of this document is to provide a uniform training program for the analysis of forensic casework using DNA PCR-based STR fluorescence imaging analysis, and in so doing, to adhere to the "FBI Quality Assurance Standards for Forensic DNA Testing Laboratories" (effective October 1, 1998). This training program supplements successful completion of the FBI's specialized scientific school "Forensic Laboratory Application of DNA Typing Methods," similar courses offered by the FBI or others, and/or college course work in biochemistry, molecular biology, and genetics. The Department of Forensic Science requires all DNA examiners to complete course work (graduate or undergraduate) in genetics, biochemistry, molecular biology (molecular genetics or recombinant DNA technology) or other courses which provide a basic understanding of the foundation of forensic DNA analysis, as well as course work and/or training in statistics as it applies to forensic DNA analysis. These courses must be completed before an individual can be deemed qualified to perform DNA analysis on casework by the Department.

1.1.2 The program will provide exposure to methods, techniques and procedures presently used and accepted by the courts and forensic DNA examiners. Additionally, it will provide for exposure to the pertinent literature available in the field and a review of applicable court rulings on the admissibility of forensic DNA analysis. The training will focus on the methods currently used in the Virginia Department of Forensic Science to allow for proficiency to be developed using both known and case materials. The training will also provide exposure to court procedures and assistance in developing the skills necessary for effective expert witness testimony.

1.1.3 Throughout the DNA training, oral and practical examinations and/or informal mock trials related to cased approach and identification of biological substances will continue to ensure that the information learned remains fresh and the skills honed.

1.1.4 The sequence in which the tasks are presented in the outline should not necessarily be considered as a mandatory order of instruction. Exposure to legal aspects and testimony will be continuous throughout the training.

1.1.5 Oral and practical examinations and/or mock trials encompassing several topics will be staged periodically.

1.1.6 Upon completion of DNA training, the trainee will undergo a comprehensive oral competency examination, followed approximately two weeks later by a formal video taped mock trial. The oral competency examination is used to ascertain the trainee's technical knowledge of case approach, identification of biological substances, and DNA analysis, with the emphasis on DNA and how case approach and identification of biological substances integrates with DNA analysis. The practical examination, analysis of a validated fabricated case, is used to ascertain the trainee's technical skills and abilities in case approach, identification of biological substances, and DNA analysis. Finally, the trainee will testify to the examinations performed on the fabricated case at a mock trial, thus likening this test to an actual courtroom situation. Satisfactory performance in all areas is required prior to upgrading a trainee to a qualified examiner in the Forensic Biology Section.

1.2 COORDINATION OF THE PROGRAM

The training coordinator will be an experienced examiner. The coordinator may delegate certain duties and blocks of instruction to other qualified examiners, but will be responsible for the overall training.

1.3 TRAINING PERIOD

It is estimated that this training program can be completed in four to six months, which is to include successful completion of the formal mock trial. Some individuals may require less time than others, depending on such factors as experience and education. The qualifications of the trainee will be evaluated and modifications will be made to this training program as appropriate. The length of the training period is a matter which will be left to the discretion of the Section Chief of the Forensic Biology Section, the trainee's supervisor, and the training coordinator.

1.4 LOCATION OF TRAINING

Whenever practical, the bulk of an individual's training will occur in the laboratory to which he/she will be assigned. If this is not possible, the training will be conducted at the most convenient laboratory. Such arrangements will be made through the Section Chief of the Forensic Biology Section. Oversight and direction of the training will be provided by the Section Chief.

1.5 MOCK TRIALS

1.5.1 Each case a forensic examiner analyzes has the potential of involving him/her as an expert witness in courtroom testimony. The trainee must never underrate this important aspect of the work. It is the training coordinator's responsibility to ensure that the trainee is thoroughly prepared for legal questioning. This can be done by a combination of mock trials, prearranged as well as impromptu question and answer sessions, pertinent literature review, and observation of courtroom testimony given by experienced examiners.

1.5.2 A mock trial may take place after the trainee has completed a block of this training protocol and a practical examination of a case incorporating that block of the training. The case will be fabricated so that the training coordinator knows the correct answers. The fabricated case thus serves as a monitor of the trainee's proficiency in applying techniques and procedures to actual casework examinations.

1.5.3 The final mock trial will incorporate all aspects of training (case approach, identification of biological substances, and DNA analysis) and will be held subsequent to the final practical examination of a fabricated case. THE TRAINEE WILL NOT RECEIVE THE FINAL MOCK CASE UNTIL ALL PHASES OF THIS TRAINING PROTOCOL HAVE BEEN SATISFACTORILY COMPLETED.

1.5.4 If the individual has no prior testimony experience, a minimum of 2 mock trials with attendant practical examinations are required prior to the final mock trial.

1.5.5 All mock trials will cover both in-depth technical questioning appropriate for a courtroom setting, as well as the typical chain of custody and standard procedural questioning. Each mock trial should serve as a constructive learning process and a good evaluation tool.

1.5.6 The scheduling of mock trials is to be done by the training coordinator as frequently as he/she deems necessary. Trials may be conducted at any of the regional laboratories, if so desired; however, the final comprehensive mock trial must be conducted in the Central Laboratory. This will be videotaped for viewing at a later date and can be used to identify weak and strong points of the trainee's testimony. The videotape will be retained for future training purposes.

1.5.7 Other related legal training will be integrated into the program on a continual basis.

1.5.8 It cannot be overemphasized that testimony training is just as important as the analytical training. The trainee must successfully meet acceptable performance standards in both areas before he/she is deemed to be qualified to conduct forensic examinations on evidential material.

1.6 GUIDELINES FOR COMPREHENSIVE ORAL EXAMINATION AND FINAL COMPREHENSIVE MOCK TRIAL AND ORAL EXAMINATION

1.6.1 Approximately two weeks prior to the final mock trial, an informal oral examination of the trainee will be conducted by the section supervisor, the Section Chief of the Forensic Biology Section, and the Laboratory Director or designee to ascertain the technical knowledge of the individual. This will be limited to two (2) hours. Questions should be confined to technical aspects of the training and should be used to ascertain whether the goals, as set forth in each technical portion of the training program, have been achieved.

1.6.2 Immediately following the oral examination the trainee may be released while the supervisor, the Section Chief of the Forensic Biology Section, and the Laboratory Director or designee evaluates the trainee's performance.

1.6.3 The outcome of the oral examination evaluation will be:

1.6.3.1 Satisfactory.

1.6.3.2 Not satisfactory.

1.6.3.2.1 If the panel determines that the trainee's performance was not satisfactory, steps must be taken to effect the appropriate action.

1.6.4 The final mock trial will not exceed four (4) hours. Prior to trial, the “prosecutor” and the "defense attorney" may reach an agreement as to selected items to be introduced at trial in order to remain within the set time constraints.

1.6.5 The atmosphere of the trial will be formal. That is, it will be conducted in the same manner as a real courtroom situation. This includes conduct, protocol, and all other aspects.

1.6.6 Harassment of the expert witness by defense counsel or prosecutor will be kept to the minimum necessary to achieve the desired goal. Questioning by both the prosecutor and defense attorney(s) should be relevant and realistic.

1.6.7 There may be two defense lawyers at the trial, one of whom must be a qualified examiner in the Forensic Biology Section.

1.6.8 The trial may be stopped at any time upon the request of any of the involved parties.

1.6.9 Immediately following the trial, the trainee may be released while the Department Director or his designee, the Section Chief of the Forensic Biology Section, section supervisor, and trial participants evaluate the trainee's performance.

1.6.10 The outcome of the trial evaluation will be:

1.6.10.1 Satisfactory.

1.6.10.2 Not satisfactory.

1.6.10.2.1 If the panel determines that the trainee's performance was not satisfactory, steps must be taken to effect the appropriate action.

1.6.11 This evaluation may be followed by a short performance critique.

1.6.12 The training coordinator will review the videotape with the individual as soon as possible. Other comments should be gathered by the individual from trial participants/observers as soon as possible.

1.6.13 Satisfactory performance on technical aspects and testimony must be achieved before the individual is qualified to perform the duties of an examiner.

1.7 TRANSITION FROM TRAINEE TO EXAMINER

1.7.1 After the individual has successfully completed all training (case approach, identification of biological substances, and DNA analysis), there follows a somewhat awkward period of adjustment. The supervisor must ensure that the transition from trainee to qualified examiner takes place as smoothly as possible. A newly qualified examiner cannot function without some guidance.

1.7.2 For a period of time, all of the newly qualified examiner’s reports must be reviewed by the supervisor or designee prior to release. Casework must be monitored closely for at least six (6) months.

1.7.3 The supervisor, or designee, will accompany the newly qualified examiner to court for the first few cases.

1.8 INSTRUCTIONS FOR THE TRAINING COORDINATOR

1.8.1 The intent of the training program is to ensure that each and every trainee is provided with certain basic principles and fundamentals necessary for the complete education of an examiner in the Forensic Biology Section. All of the listed topics must be incorporated into the program. However, education and prior experience of the trainee will be used as a guide to determine the amount of time devoted to each topic. Some of the topics will suggest an order of events and this ranking should be followed. ANY DEVIATION FROM THE CONTENTS OF THIS PROTOCOL MUST BE CLEARED WITH THE SECTION CHIEF OF THE FORENSIC BIOLOGY SECTION.

1.8.2 The training coordinator or designated examiner will document the completion of each required training task by the trainee on the checklist for that aspect of training. The checklist for each training topic is located at the end of each section in this training manual.

1.8.2.1 The completed checklists will be retained by the trainee in the appropriate sections of his/her training notebook.

1.8.2.2 One copy of all completed checklists will accompany the Training Coordinator's final report to the Section Chief stating that all aspects of the training program have been completed satisfactorily.

1.8.3 The trainee will be evaluated on his/her performance during the course of the program. The training coordinator must submit monthly written evaluations of the trainee's progress to the Section Chief of the Forensic Biology Section. The monthly training report is due on each trainee within five working days of the end of the month.

1.8.4 The monthly training report must include:

1.8.4.1 A summation of the progress made during the month.

1.8.4.2 An evaluation of the trainee's notebook.

1.8.4.3 An evaluation of the progress during the month, to include:

1.8.4.3.1 Problem areas, as applicable, and their solutions or proposed solutions.

1.8.4.3.2 Trainee's strong points.

1.8.4.3.3 Trainee's weak points and suggested remedies.

1.8.4.3.4 Statement concerning trainee's overall performance.

1.8.4.3.5 Plans for the upcoming month.

1.8.5 This report will be in memorandum format, one memorandum per trainee. Each memorandum will become a part of the training history of the trainee and will be used to document the trainee's progress toward qualification. The monthly report format is located at the end of this section.

1.8.6 A review of the checklists with the trainee at the end of each month will enhance the training coordinator's ability to prepare the monthly written evaluation, and may also give the trainee a greater sense of accomplishment. The coordinator is to discuss this evaluation with the trainee and the trainee's supervisor prior to forwarding it to the Section Chief. Any comments by the trainee, coordinator, or supervisor are to be included with the report.

1.8.7 When the trainee has satisfactorily completed all training requirements (case approach, identification of biological substances, and DNA analysis), a memorandum will be issued by the Section Chief to the Department Director recommending that the person be qualified to perform the duties of an examiner in the section. If the trainee cannot meet the criteria

expected of him/her during the period allowed for training in each of the areas, steps will be taken to effect the appropriate action.

1.8.8 The training should culminate so that the trainee has the following:

1.8.8.1 Knowledge of the principles and practices of forensic serology and DNA as these relate to the analysis of case material.

1.8.8.2 Knowledge of the theory and application of instrumentation and specialized techniques used to examine biological evidence.

1.8.8.3 The ability to perform accurate forensic analyses independently and proficiently, to accurately document the findings of all analyses in accordance with Department and Section policies and procedures, and to accurately report those findings in a Certificate of Analysis.

1.8.8.4 The ability to skillfully present and defend analytical findings in a court of law.

1.9 INSTRUCTIONS FOR THE TRAINEE

1.9.1 The trainee is expected to keep a loose-leaf notebook on all work completed. The completed checklist for each training topic and the training coordinator's monthly report will also be included in the notebook.

1.9.2 The notebook should be organized by subject. Within each subject category, the types of tests or examinations observed and performed, notes and comments on each type of test, and the review of pertinent literature should be included. For each procedure performed, comments/notes should include the following, as appropriate: principle, procedural outline (to include the purpose of critical reagents), sensitivity, specificity, interpretation of results, possible interferences/problems, and comments, including comparison to other methods.

1.9.3 The DNA PCR-based STR fluorescence imaging analysis and quality control procedures can be found in the Commonwealth of Virginia Department of Forensic Science Forensic Biology Section Procedure Manual, Section III - Fluorescent Detection PCR-Based STR DNA Protocol: PowerPlex® 16 BIO System, Section IV - The BioMek®2000 Automation Workstation Program Manual, and Section VI - The Quality Assurance Program DNA Typing Of Biological Materials.

1.9.3 All readings associated with the training are included in the Bibliography (Appendix A) of this manual, along with a listing of Glossary Terms (Appendix B) and Additional Training Aids (Appendix C). The readings, glossary terms and additional training aids cover the material needed for an adequate understanding of the subject matter and **ARE REQUIRED**.

1.9.4 A list of study questions is located at the end of each section in this manual. The trainee is encouraged to write out the answers to the questions after completing the required tasks and readings for the section.

1.9.5 The training program provides the trainee with exposure to various types of samples. Similar samples have been grouped together. Each group of samples can be worked simultaneously, although they may be at different stages of the procedure.

1.9.6 The trainee will assist with casework throughout the training only under the direct supervision of a qualified examiner.

MONTHLY TRAINING REPORT FORMAT

(on letterhead stationary)

MEMORANDUM

TO: (Name), Section Chief of the Forensic Biology Section

FROM: (Name), Training Coordinator

DATE:

SUBJECT: Training Report: (Name)

This report reviews and evaluates the forensic DNA PCR training of (Name) for the month of _____.

1. Progress during the month
2. Evaluation of trainee's notebook
3. Evaluation of progress
4. Plans for the upcoming month

cc: (Trainee)
(Regional Director)
(Supervisor, if different than the Training Coordinator)

♦**END**